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| THELEN REID & PRIEST LLP | | | CHUNG, JI YONG DAVID | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/982,106 | JAIN ET AL. | |
| | Examiner | Art Unit | |
| | Ji-Yong D. Chung | 2143 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10/12/2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 12-50 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Remarks

1. Applicant's arguments and amendments filed on October 12, 2005 have been carefully considered but they are deemed moot in light of new ground of rejection set forth in the instant Office Action.

Allowability of claims 11-23, 25-36, , indicated in the prior Office Action, in light of new references, is withdrawn.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 30, 43, 48, and 49** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 cites "The method of claim 29." However, claim 29 is an apparatus claim. Furthermore, claim 29 does not cite a method. A correction is required.

For the purpose of examination, claim 30 is assumed to refer to claim 29's apparatus.

Claims 43 and 48 refer to “source-group data structure” in claims 41 and 46, respectively. However, claims 41 and 46 do not cite source-group data structure. Thus, scope of claims 43 and 48 cannot be determined.

Claims 43 and 48 are not examined on merits.

Claim 49 refers to “forwarding data structure,” in claim 46. However, claim 46 does not cite the feature. Scope of claim 49 cannot be determined.

Claim 49 is not examined on merits.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 11-50** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 11-50 are not limited to tangible embodiments. In view of Applicant’s disclosure, specification paragraph 0068, the medium is not limited to tangible embodiments, instead being defined as including both tangible embodiments (e.g., hardware) and intangible embodiments (e.g., steps in software). As such, claims are not limited to statutory subject matter and are therefore non-statutory.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 12-42, 44-47, and 50** are rejected under 35 U.S.C. 102(e) as being anticipated by Tang et al (Pat. No. US 6,839,348, Tang hereinafter). Tang incorporates by reference Gleeson et al. (Pat. No 5,959,989, Gleeson hereinafter)

With respect to **claim 12**, Gleeson shows a method comprising:

updating a source-group data structure using information from the control message, the source-group data structure containing data regarding a multicast group [See Fig. 2c of Gleeson, which is a “source-group data structure.” It contains multicast group address. See lines 21-32 in column 2 of Gleeson. See lines 30-35 in column 16 for the step of updating the data structure]; and

adding an outgoing port index to data source-group data structure, said outgoing port index identifying a port that received the control message [See Fig. 2C, which lists a port index

(‘port number’) in the table. Inserting the source group necessarily adds a port number, because the data structure includes a field for the “port index.”].

With respect to **claim 13**, Gleeson shows that *source-group data structure is a source-group table* [See Fig. 2C. Source-group data structure, as it is evident from Fig. 2C, is a table].

With respect to **claim 14**, Gleeson shows *a further step of creating an entry in an outgoing port lookup table, said entry associating said outgoing port index to said port that received the control message* [See Fig. 2B, which shows “port index” (‘port number’) and the port (designated by MAC address). Creating an entry involves updating the table. See lines 30-35 in column 16].

With respect to **claim 15**, Tang shows *searching in a forwarding table for a forwarding entry having a destination hardware address matching a destination hardware address for a multicast group indicated by the control message* [See from line 35, column 15 to line 3 in column 16 of Tang]; and

updating said forwarding entry in said forwarding table if a destination hardware address matching a destination hardware address for said multicast group is found [See from line 35, column 15 to line 3 in column 16 of Tang].

With respect to **claim 16**, Tang and Gleeson show a method comprising

deriving an explicit source lookup key from the control message [See lines 50-67 in column 16 of Tang. S4, which is the specific source address, is the “source lookup key.”]; and retrieving an outgoing port index associated with an entry in a session data structure, said entry corresponding to said explicit source lookup key [“Session data structure” are the rows, in the multicast routing table (“forwarding table”). Each entry of the outgoing interface list is associated with an interface (“outgoing port index”) shown in Fig. 3. The retrieval is performed by looking up the forwarding table]; and

updating an outgoing lookup table entry corresponding to said outgoing port index with information regarding designated devices in said multicast group indicated by the control message [See Fig. 3 of Tang. The outgoing lookup table entry is either IIF or OIF in the multicast routing table. It is updated in accordance with the description, starting at line 16, column 16 to line 17, in column 19].

With respect to **claim 17**, Gleeson shows *session data structure is a session table*. The set of rows, each containing explicit source address in the forwarding address, correspond to a “session table.”

With respect to **claim 18**, Tang and Gleeson show a method comprising *determining if the control message establishes shared source distribution trees or explicit source distribution trees* [The step is inherent in Tang. Tang’s system responds differently depending on the source address, whether it is shared source distribution tree or it is an explicit source distribution tree. If it is a shared distribution tree, the system follows the steps described

from line 16, column 15 to line 13, column 16 in Tang. If the message is an explicit one, Tang's system follows the steps described from line 14, column 16 to line 19, column 19];

Other limitations of claim 18 are same as those of claims 12 and 16, with one difference.

The limitations which correspond to those in claim 12 are different than those of claim 12 because of an additional clause, "if the control message establishes shared source distribution trees." Gleeson still meets the limitations, because the steps (which correspond to the limitations of claim 12) apply to both shared source distribution and non-shared.

Claims 19-22 incorporate the limitations of claims 13-15 and 17. The reasons for the rejection of claims 13-15 and 17 apply to claims 19-22. Even though the limitation of claims 20 and 21 mention, "if the control message establishes shared source distribution trees," it makes little difference. Gleeson's features apply for both shared and explicit distribution trees.

With respect to **claim 23**, Tang shows

determining if the control message is a hello or join/prune message [identification of the message type is inherent in multicast network device in Tang. MND's implement PIM protocol. See lines 15-39, column 10] and

performing said determining, updating, a source-group data structure, adding, deriving, retrieving, and updating an outgoing lookup table entry only if said control message is a join/prune message. [See the above discussion of Tang in the preceding claims. All of the preceding functions are only performed when the message is a join message. The 'group

forwarding table' 250 in Fig. 2C can only be updated upon join/prune, because it requires subscription data changes.

With respect to **claim 24**, Tang's device implements PIM hello [See lines 15-39, column 10]. Implementation of hello entails *creating or updating a neighbor list using said hello message, said neighbor list identifying address ad port information regarding device which sent the control message*. In other words, the limitation merely repeats what any system that implements hello is capable of performing.

Claims 25-37 substantively incorporate the limitations of claims 12-24, but in apparatus form rather than in method form. The reasons for the rejection of claims 12-24 apply to claims 25-37.

Claims 38-40 substantively incorporate the limitations of claims 12, 16 and 18, but in software product form rather than in method form. The reasons for the rejection of claims 12, 16, and 18 apply to claim 38-40.

With reference to **claim 41**, Tang shows *deriving a shared source lookup key from multicast group information in the control message* [See from line 15, column 15 to line 3, column 16 in Tang. G1 is the shared source lookup key.]

searching a forwarding data structure for a forwarding entry having a shared source lookup key matching the shared source lookup key [See from line 15, column 15 to line 3, column 16 in Tang. G1 is matched. See more specifically, lines 51-56, column 15]; if a forwarding entry having a shared source lookup key matching the destination shared source lookup key is found, revising an associated outgoing port in the forwarding entry to match an incoming port for the control message. See lines 51-56, column 15. Note that OIF field is revised.

With respect to **claim 42**, Tang shows that *the shared source lookup key is a destination media access control (MAC) address for the control message*. See lines 42-45, column 22. Note that G1 (an address) is looked up, for one embodiment in which it is MAC. (Other embodiment has G1 as IP address, according to lines 42-45, column 22.

With respect to **claim 44**, Tang shows that the forwarding data structure is a forwarding table ('multicast routing table'). See Fig. 3.

Claim 45 substantively incorporates the limitations of claim 12. The reasons for the rejection of claim 12 apply to claim 45.

In addition, claim 45 cites *extracting multicast group information from the control message*. Gleeson shows the feature. Multicast group information in Fig. 2C is given by subscribing VLAN ("multicast group") and is included in the message that is received.

With respect to **claim 46**, Tang shows

deriving an explicit source lookup key from the control packet [See lines 27-49, column

16. S4 is the source lookup key and it is an address];

searching a session data structure for a session entry having an explicit source lookup key matching the derived explicit source lookup key [“Session data structure” correspond to the rows, in the multicast routing table (“forwarding table”). Each entry of the outgoing interface list is associated with an interface (“outgoing port index”) shown in Fig. 3. The retrieval is performed upon searching the session data structure. See from lines 27-49, column 16.];

if a session entry having an explicit source lookup key matching the derived explicit source lookup key is found, revising an associated outgoing port in the session entry to match an incoming port for the control message [See Fig. 3 of Tang. The outgoing lookup table entry is either IIF or OIF in the multicast routing table. It is revised in accordance with the description, starting at line 16, column 16 to line 17, in column 19.].

With respect to **claim 47**, Tang shows that *the explicit source lookup key is a combination of a multicast source network address, a destination network address, and incoming port for the control message and a protocol type. See Fig. 3. Any element of each row in the multicast routing table maybe used as a key. Note that even though protocol type is not included in the table, Tang’s feature still meets the limitation, because the limitation does not require the presence of the port type. The limitation prescribes some “combination” of “source network address, destination network address, and incoming port.”*

Claim 50 substantively incorporates the limitations of claim 45, and the reasons for the rejection of claim 45 apply to claim 50.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ji-Yong D. Chung whose telephone number is (571) 272-7988. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ji-Yong D. Chung
Patent Examiner
Art Unit: 2143



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PRIMARY EXAMINER